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Docket No.: 29617/37215B
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Wolfgang WITZ et al.

Application No.: 10/730,512 Confirmation No.: 2347

Filed: December 8, 2003 Art Unit: 3751

For: FREE INK SYSTEM Examiner: Huyen Le

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants filed a Notice of Appeal on September 21, 2005. As required under 37 CFR § 41.37(a) and § 41.37(e), this brief is filed with a Petition for a Two Month Extension of Time, as January 21, 2006 fell on a Saturday, and this Brief is filed on the following Monday.

The fees required under § 41.20(b)(2) are dealt with in the accompanying Transmittal Of Appeal Brief.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.

I. REAL PARTY IN INTEREST.

The real party in interest is Sanford, L.P. U.S. Application No. 10/106,552, now U.S. Patent No. 6,695,517, was filed on March 26, 2002, and assigned to Sanford, L.P. See assignment recorded on Reel 013003, Frame 0713. The pending application is a divisional of and claims priority to the application that issued as the '517 patent. The assignment, recorded on June 18, 2002, therefore gives Sanford, L.P. all rights to the divisional application. See MPEP § 306.

II. RELATED APPEALS AND INTERFERENCES.

There are no related appeals or interferences.

III. STATUS OF THE CLAIMS.

Currently, claims 1-8 and 28-36 are pending in the application. The pending claims are presented in Appendix A to this Brief.

Claims 1-3, 7, 8, and 28 stand rejected under 35 U.S.C. § 103(a) as obvious over Kaufman, U.S. Patent No. 6,183,155. Claims 4-6 stand objected to, but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims. Claims 29-36 stand allowed and claims 9-27 were canceled.

Applicants are appealing the rejections of claims 1-3, 7, 8, and 28.

IV. STATUS OF THE AMENDMENTS.

An amendment after final action was filed on August 1, 2005. This filing amended portions of the specification to attend to an objection to the specification. The U.S. Patent

and Trademark Office ("the Office") entered the amendment in an Advisory Action mailed on August 24, 2005. Accordingly, the Office no longer objects to the specification.

No claim amendments were filed after the final Office action of May 31, 2005.

V. SUMMARY OF CLAIMED SUBJECT MATTER.

The subject matter recited in claim 1 (the only independent claim at issue) is directed to a free ink marking instrument for dispensing ink, such as a marker, and is best shown in Figs. 2 and 4. The instrument includes a housing 26 and a reservoir 32 disposed in the housing 26 for storing fluid ink 34. See specification, page 7, lines 15-23. A feed tube 36 communicates with the reservoir 32 and conveys the fluid ink 34. Page 7, line 23 – page 8, line 2. A porous tip 40 is disposed within the feed tube 36 and includes a marking end. *Id.* The tip 40 conveys the fluid ink 34 from the feed tube 36 to a substrate for marking thereon. *Id.* A portion of the tip 40 is disposed within the feed tube 36 and extends a portion of the length of the feed tube 36. *Id.* A porous buffer 60 is disposed within the housing 26 and adjacent to the feed tube 36. *Id.* The buffer 60 is configured to store ink 34 during periods of a decreasing pressure differential between the reservoir 32 and the atmosphere. See specification, page 14, lines 7-21. A passage 66 is formed between the outside surface of the tip 40 and the inside surface of the feed tube 36. See specification, page 9, lines 5-11. The passage 66 has a mean thickness of about 0.010 inches to about 0.025 inches. See specification, page 3, lines 4-13.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.

Whether it would have been obvious to size the passages 24, 26 of Kaufman, U.S. Patent No. 6,183,155, to the claimed dimensions to optimize performance, under the teachings of *In re Aller;* 220 F.2d 454 (CCPA 1955). See also MPEP § 2144.05(II)(A).

Whether Kaufman discloses or suggests a feed tube as recited in claims 1-3, 7, 8, and 28.

Whether Kaufman discloses or suggests a porous tip disposed within a feed tube as recited in claims 1-3, 7, 8, and 28.

VII. ARGUMENT.

Claims 1-3, 7, 8, and 28 are allowable over Kaufman for three separate reasons. First, the Office has incorrectly applied the teachings of *In Re Aller*, i.e., the passage thickness dimension recited in claims 1-3, 7, 8, and 28 is not obvious over Kaufman. Second, Kaufman does not disclose a feed tube, as recited in the claims. Third, Kaufman does not disclose a porous tip disposed within the feed tube as recited in the claims.

A. Kaufman Does Not Disclose or Suggest the Claimed Mean Thickness.

Claim 1 recites that a passage is formed between the outside surface of the porous tip and the inside surface of the feed tube, and the passage has a mean thickness of about 0.010 inches to about 0.025 inches. Applicants respectfully traverse the Office's finding that it would have been obvious to size the passages 24, 26 of Kaufman to the claimed dimensions so as to optimize performance, and further assert that the Office has incorrectly applied the teachings of *In re Aller*, 22 F.2d 454 (CCPA 1955). See also MPEP § 2144.05(II)(A).

In re Aller stands for the proposition that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by

routine experimentation. However, MPEP § 2144.05(II)(B) qualifies *In re Aller*, stating that "[a] particular parameter [i.e., claim element] must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." For example, the MPEP cites *In re Antonie*, 559 F.2d 618 (CCPA 1977), which allowed a claim to a wastewater treatment device with a tank volume to contractor area of 0.12 gal/ft^2. The court found that the prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art as a result-effective variable. Facts similar to *In re Antonie* are present here.

For example, Kaufman did not recognize that the passages 24, 26 provide structure for responding to changes in pressure, and therefore did not recognize that the thickness of the passage was a result effective variable. Thus, the application of *In re Aller* fails. Applicants have found that the claimed passage dimension of 0.010 – 0.025 inches between the feed tube and the porous tip is the best width to allow air bubbles to form and to flow upwardly in the passage 66. This range reflects applicants' recognition that air bubble formation and travel through the passage is desirable because it optimizes the marker's reaction to changes in pressure. This gap allows air to travel from the ambient atmosphere to quickly reach the air pocket 62 in the reservoir 32 through the claimed passage and to bypass the porous tip which has a **capillarity** resistance to air flow greater than that of the claimed passage. Fig. 4 best shows the passage 66. "The bubble separation area 68 is located in the vicinity of the shoulder 94 of the tip 40 between the buffer 60 and the first diameter 70 to allow bubbles 114 to form and rise in the passage 66 to the surface of the ink 34 in the reservoir 32." Specification, page 14, line 23-26 (emphasis added). Much like *Antonie*,

Kaufman fails to recognize that air bubble formation and marker responsiveness to pressure differential can be achieved using a passage formed between the outside surface of the tip and the inside surface of the feed tube, and Kaufman therefore fails to recognize that the passage size is a result-effective variable.

Instead, Kaufman discloses a marking instrument that includes a housing 2 with a divider wall 4 and a reservoir 7 for storing fluid ink 6 within the housing 2. A wick 10 extends downwardly from the divider wall 4 to outside of the housing 2. A first U-shaped shaft and a second U-shaped shaft extend downwardly along opposite sides of the wick 10 and are shown in cross section in Fig. A-A′ (adjacent to Fig. 4). A first passage 24 is formed between the outside surface of the tip 10 and the first U-shaped shaft and a second passage 26 is formed between the outside surface of the wick 10 and the second U-shaped shaft.

Kaufman does not disclose that the passages 24, 26 achieve air bubble formation, and therefore Kaufman provides no motivation to size the passages 24, 26 to the claimed dimension. To the contrary, Kaufman only discloses that the passages 24, 26 have the purpose of feeding "liquid directly to the lower region of the wick 10." Kaufman, col. 3, lines 60-61. Accordingly, Kaufman only teaches to size the passage 24 to optimize the delivery of ink to the wick 10. There is simply no teaching or motivation in Kaufman to size the passage 24 to optimize air bubble formation and travel so that the marker of Kaufman can quickly react to changes in ambient pressure.

Further, there is no teaching whatsoever in Kaufman that air bubbles travel up the passages 24, 26. As the marker is used, air replaces the ink stored within the reservoir. In Kaufman, air will travel through the vent bore 14 (not labeled in Fig. 4, but labeled in Fig. 5), up around the storage means 16. The air must then penetrate the side of the wick 10, flow

upward through the wick 10 and through the opening 18, and form an air bubble in the ink 6 and rise to the air volume 7.

Because Kaufman achieves pressure equilibration with different structure, there is no motivation to modify the passages 24, 26 achieve the recognized result of air bubble formation, travel to the reservoir, and to promote marker function. Claims 1-3, 7, 8, and 28 are allowable over Kaufman for this reason alone.

B. Kaufman Does Not Disclose a Feed Tube.

Claims 1-3, 7, 8, and 28 recite a feed tube to convey fluid ink. The two independent U-shaped shafts of Kaufman are not a feed tube, as asserted by the Office.

As outlined above, Kaufman discloses a wick 10 and a first U-shaped shaft disposed along a first side of the wick 10 and a second U-shaped shaft disposed along a second side of the wick 10. Each of the U-shaped shafts are shafts that have the cross-sectional shape of a "U" and therefore are open along one side of their entire length. The Office combines the two separate shafts to form an imaginary feed tube. See Office action of May 31, 2005, page 4 ("the feed tube of Kaufman includes two U-shaped portions.").

The imagined combination of the two U-shaped shafts does not form a feed tube, as asserted by the Office. The two independent U-shaped shafts are wholly separate from each other (not even touching), disposed on opposite sides of an object, and each form an independent passage 24 and 26, respectively. Kaufman does not combine these independent structures to form a singular element at all, and thus does not disclose a feed tube as claimed.

This is dramatically seen if the wick 10 (alleged to read on the claimed porous tip) is removed. The separate U-shaped shafts remain, spaced apart from each other and their open sides facing each other. These spaced, independent shafts obviously do not form a single

tube at all. Because the U-shaped shafts in combination do not form a tube, claims 1-3, 7, 8, and 28 are allowable.

C. Kaufman Fails to Disclose a Porous Tip Disposed Within a Feed Tube.

Claims 1-3, 7, 8, and 28 recite that a porous tip is disposed *within the feed tube.* Kaufman fails to disclose a feed tube (as set forth above) and thus also fails to disclose that the wick 10 is disposed within a feed tube.

Each of the first and second U-shaped shafts extending along the wick 10 has an interior defined by the U. The cross section of the interior of each U is significantly narrower than the cross-section of the wick 10. See Fig. A-A′. In fact, no part of the wick 10 is disposed inside the interior of the U of either of the U-shaped shafts. Accordingly, Kaufman fails to disclose a wick 10 that is disposed within either the first U-shaped shaft or the second U-shaped shaft.

The Office, again, argues that the two independent, spaced apart U-shaped shafts form a single feed tube, and that the wick 10 is within this combination. This is incorrect on its face, as pointed out earlier, because the two U-shaped shafts do not form a tube. However, even if the Office's implausible definition of a tube is taken, the wick 10 is not within the imaginary combination, because the wick 10 is **larger** than the combination. In other words, a large portion of the wick 10 extends outside the outer limits of the imaginary feed tube. While the wick may be **between** the elements of the imaginary combination, it is not **within** the imaginary combination.

VIII. CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that each of claims 1-3, 7, 8, and 28 is patentable over the prior art, and that all of the pending claims should be allowed.

Respectfully submitted,

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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/730,512

1. (previously presented) A free ink marking instrument for dispensing an ink, comprising:

a housing;

a reservoir for storing fluid ink within the housing;

a feed tube to convey fluid ink, communicating with the reservoir;

a porous tip disposed within the feed tube for conveying ink to a substrate at a marking end of the tip, wherein the portion of the tip disposed within the feed tube extends a portion of the length of the feed tube;

a porous buffer disposed within the housing adjacent the feed tube and configured for storing ink during periods of a decreasing pressure differential between the reservoir and the atmosphere;

a passage formed between the outside surface of the tip and the inside surface of the feed tube, wherein the passage has a mean thickness of about 0.010 in. to about 0.025 in.

2. (original) The instrument of claim 1, wherein the end of the feed tube closest to the tip is disposed at about 0.5 in. to about 1.5 in. from the marking end of the tip.

3. (original) The instrument of claim 1, wherein a portion of the buffer is in disposed in capillary coupling contact to a portion of the tip.

4. (original) The instrument of claim 1, wherein the tip comprises a shoulder near the end of the tip disposed within the feed tube and further comprising a second passage formed between the end surface of the feed tube and the surface of the shoulder, the second passage in fluid communication with the passage formed between the outside surface of the tip and the inside surface of the feed tube.

5. (original) The instrument of claim 4, wherein the second passage has a mean thickness of about 0.002 in. to about 0.030 in.

6. (original) The instrument of claim 4, wherein the end of the feed tube closest to the tip is disposed at about 0.5 in. to about 1.5 in. from the marking end of the tip.

7. (original) The instrument of claim 1, wherein the capillarity of the tip is greater than the capillarity of the buffer and greater than the capillarity of the passage.

8. (original) The instrument of claim 1, wherein the tip is secured against substantial movement in the axial direction.

9-27. (canceled).

28. (previously presented) The instrument of claim 1, wherein a portion of the length of the buffer is in disposed in capillary coupling contact to a portion of the length of the tip.

29. (previously presented) A free ink marking instrument for dispensing an ink, comprising:

a housing;

a reservoir for storing fluid ink within the housing;

a feed tube to convey fluid ink, communicating with the reservoir;

a porous tip disposed within the feed tube for conveying ink to a substrate at a marking end of the tip;

a porous buffer disposed within the housing adjacent the feed tube and configured for storing ink during periods of a decreasing pressure differential between the reservoir and the atmosphere;

a passage formed between the outside surface of the tip and the inside surface of the feed tube, wherein the passage has a mean thickness of about 0.010 in. to about 0.025 in; and

wherein the tip comprises a shoulder near the end of the tip disposed within the feed tube and further comprising a second passage formed between the end surface of the feed tube and the surface of the shoulder, the second passage in fluid communication with the passage formed between the outside surface of the tip and the inside surface of the feed tube.

30. (previously presented) The instrument of claim 29, wherein the end of the feed tube closest to the tip is disposed at about 0.5 in. to about 1.5 in. from the marking end of the tip.

31. (previously presented) The instrument of claim 29, wherein a portion of the buffer is in disposed in capillary coupling contact to a portion of the tip.

32. (previously presented) The instrument of claim 29, wherein the second passage has a mean thickness of about 0.002 in. to about 0.030 in.

33. (previously presented) The instrument of claim 29, wherein the end of the feed tube closest to the tip is disposed at about 0.5 in. to about 1.5 in. from the marking end of the tip.

34. (previously presented) The instrument of claim 29, wherein the capillarity of the tip is greater than the capillarity of the buffer and greater than the capillarity of the passage.

35. (previously presented) The instrument of claim 29, wherein the tip is secured against substantial movement in the axial direction.

36. (previously presented) The instrument of claim 29, wherein a portion of the length of the buffer is in disposed in capillary coupling contact to a portion of the length of the tip.